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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,542	04/15/2004	Alan Robinson	920537-95908	8240
23644 7590 12/12/2007 BARNES & THORNBURG LLP P.O. BOX 2786 CHICAGO, IL 60690-2786			EXAMINER SINGH, DALZID E	
			ART UNIT 2613	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patent-ch@btlaw.com

Office Action Summary	Application No. 10/825,542	Applicant(s) ROBINSON, ALAN	
	Examiner Dalzid Singh	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Allowable Subject Matter

1. The indicated allowability of claims 1-5, 7, 15-17, 22-29, 37, 41 and 42 is withdrawn in view of the newly discovered reference(s) to Franco et al. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 112

2. Claims 1-17, 23-37 and 39-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the received optical signal" and "the electrical digital signal". There is insufficient antecedent basis for this limitation in the claim.

The claims recites "wherein the digital signal processing means derives information concerning characteristics of individual spans from the electrical digital signal." It is unclear how the electrical digital signal, which does not travel on the optical communication link comprising of plurality of spans, is able to provide information concerning characteristics of individual spans.

Claim 22, recites the limitation "the electrical digital signal". There is insufficient antecedent basis for this limitation in the claim.

Claim 23, recites the limitation "the electrical digital signal". There is insufficient antecedent basis for this limitation in the claim. The claim recites "analyzing the

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electrical digital signal to derive information concerning characteristics of individual spans from the electrical digital signal." It is unclear how the electrical digital signal, which does not travel on the optical communication link comprising of plurality of spans, is able to provide information concerning characteristics of individual spans.

Claim 41 recites, "...the code means comprising instructions for controlling the system to:" It is not clear how the code means is able to control the system to "receive a signal...; convert the received signal...; perform analogue to digital conversion..." How is the system controlled to receive the signal or to convert the received optical signal to the electric signal..." Devices which are tunable or adjustable can be controlled. For example, tunable filters, or tunable attenuator are controllable. Is there additional element which is provided prior to the signal being received such that the system can be control to receive the signal?

Claim Objections

3. Claim 38 is objected to because of the following informalities:

In the previous office action, claim 38 has been indicated as allowable, however, this was in error since claim 38 was part of a non-elected group. Therefore, claim 38 on the claim listing filled 28 September 2007, has an incorrect status. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-5, 7, 15-17, 22-29, 37, 41 and 42 rejected under 35 U.S.C. 103(a) as being unpatentable over Franco et al (US Patent No. 6,538,788).

Regarding claims 1 and 23 (in view of the 112 rejection), Franco et al disclose optical communications system, as shown in Fig. 1, comprising:

a transmitter (2);

a receiver (1);

an optical communications link (4) between the transmitter and receiver comprising a plurality of spans; and

at least one line amplifier (9) between spans of the communications link, wherein the receiver comprises:

optical to electrical conversion circuitry for converting the received optical signal to an electric signal (it is inherent that the system comprises optical to electrical converter); and

digital signal processing means for analyzing the electrical digital signal, wherein the digital signal processing means derives information concerning characteristics of

individual spans from the electrical digital signal (see col. 10, lines 53-67 to col. 11, lines 1-7; col. 12, lines 66-67 to col. 13, lines 1-13).

Franco et al do not disclose analogue to digital conversion circuitry however, Franco et al teach digital signal. Therefore, it would have been obvious that there exist analog to digital signal converter in order to enable interface between optical signal and digital processor.

Regarding claims 2, 5, 15, 24, 27 and 36, Franco et al disclose analyzing the signal and differ from the claimed invention in that Franco et al do not disclose wherein the means for analyzing the electrical digital signal analyses a self phase modulation effect within the received signal or wherein the means for analyzing the electrical digital signal analyses a four wave mixing effect. However, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to program the processor so that it will process the digital signal as such. The claims recites various analysis of the signal, which suggest that such limitation lack criticality.

Regarding claims 3 and 25, Franco et al do not disclose that the means for analyzing the electrical digital signal analyses a self phase modulation effect at installation of the system, or on an unused wavelength of a system which is in service. However, it would have been obvious to an artisan of ordinary skill in the art to analyze the signal at installation.

Regarding claims 4 and 26, Franco et al do not disclose wherein the means for analyzing the electrical digital signal analyses a self phase modulation effect in-service.

However, it would have been obvious to an artisan of ordinary skill in the art to analyse a self phase modulation effect in-service in order to detect variation of the signal.

Regarding claims 7 and 29, , Franco et al do not disclose wherein the means for analyzing the electrical digital signal analyses a cross phase modulation effect in-service. However, it would have been obvious to an artisan of ordinary skill in the art to detect variation of the signal.

Regarding claim 16, a system as claimed in claim 15, wherein the means for analyzing the electrical digital signal analyses a four wave mixing response between pulsed waveforms. In analyzing the signal for four wave mixing it would have been obvious to analyze between pulsed waveforms, since four wave mixing occur between channels.

Regarding claim 17, Franco et al do not disclose wherein the means for analyzing the electrical digital signal analyses a four wave mixing response between pulsed and continuous waveforms. However, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide four wave mixing between pulsed and continuous waveforms.

Regarding claim 22, Franco et al disclose a receiver for use in an optical communications system for receiving an

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optical signal from an optical link comprising a plurality of spans, the receiver comprising:

optical to electrical conversion circuitry for converting a received optical signal to an electric signal (it is inherent to provide optical to electrical conversion);

digital signal processing means for analyzing the electrical digital signal, wherein the digital signal processing means derives information concerning characteristics of individual spans from the electrical digital signal (see col. 10, lines 53-67 to col. 11, lines 1-7; col. 12, lines 66-67 to col. 13, lines 1-13).

Franco et al do not disclose analogue to digital conversion circuitry however, Franco et al teach digital signal. Therefore, it would have been obvious that there exist analog to digital signal converter in order to enable interface between optical signal and digital processor.

Regarding claim 41 (in view of the 112 rejection), a computer-readable medium embodying a computer program comprising code means for implementing a method of monitoring characteristics of an optical link in an optical communications system between a transmitter and a receiver when said program is run on a computer, the code means comprising instructions for controlling the system to:

receive a signal from the transmitter (2) at the receiver (1);

convert the received optical signal to an electric signal;

analyze the electrical digital signal to derive information concerning characteristics of individual spans from the electrical digital signal (see col. 10, lines 53-67 to col. 11, lines 1-7; col. 12, lines 66-67 to col. 13, lines 1-13).

Franco et al do not disclose converting the analogue signal to digital signal, however, Franco et al teach digital signal. Therefore, it would have been obvious that there exist analog to digital signal converter in order to enable interface between optical signal and digital processor. Furthermore, it would have been obvious that the processor comprises instruction to perform the analysis.

Regarding claim 42, Franco et al do not disclose wherein the code means comprises instructions for controlling the system to analyze a self phase modulation effect within the received signal in service or at installation of the system, and/or to analyze a cross phase modulation effect within the received signal. However, it would have been obvious to an artisan of ordinary skill in the art to analyze the signal at installation.

Allowable Subject Matter

6. Claims 6-14 and 30-36, 39 and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (571) 272-3029. The examiner can normally be reached on Mon-Fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DALZID SINGH
PRIMARY EXAMINER

Dalzid Singh